

**FIG. 1**

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FIG. 2

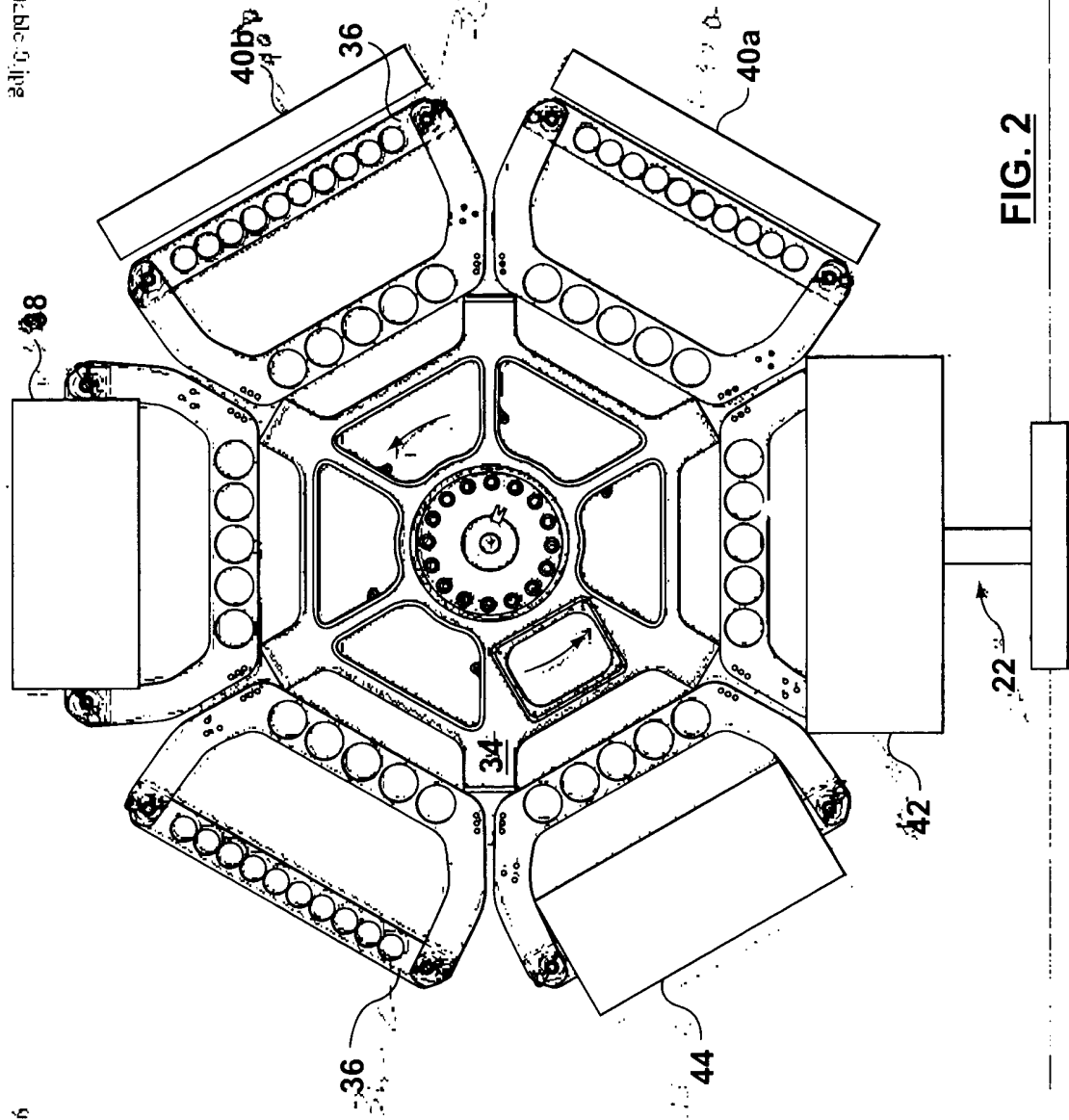
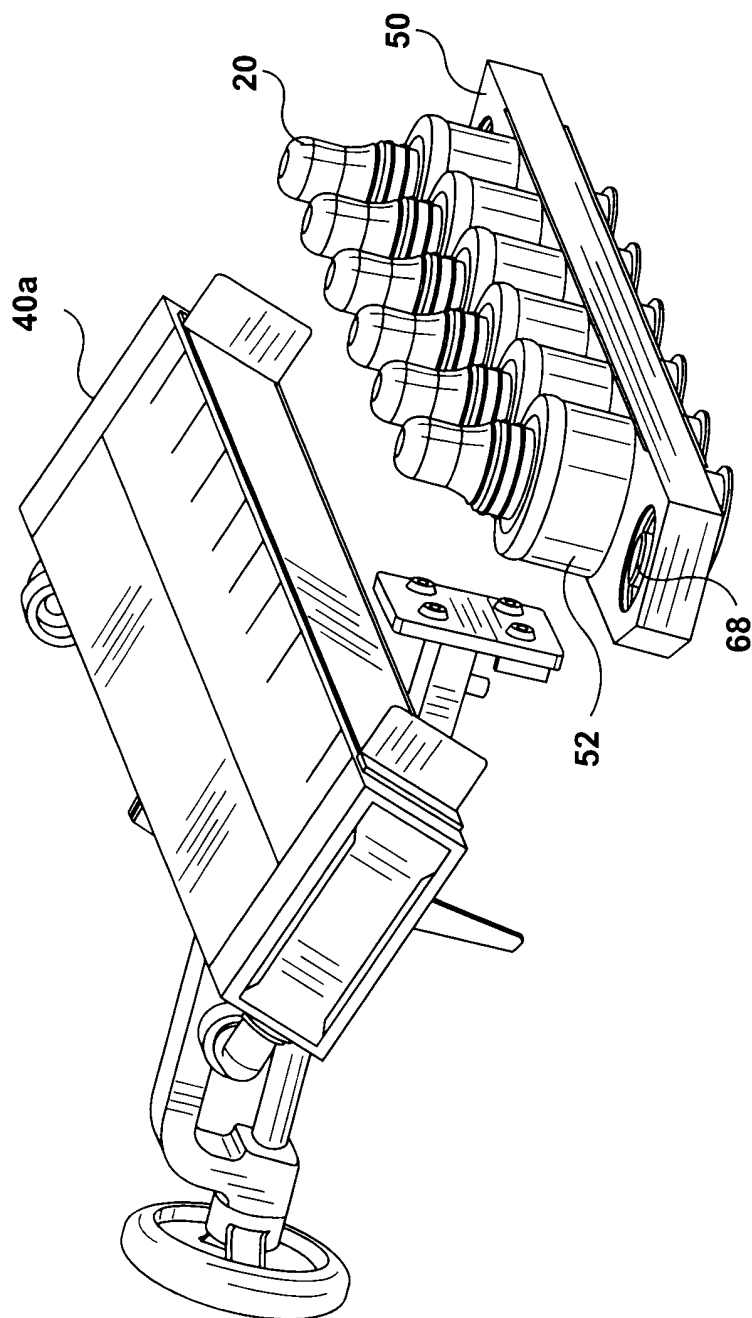


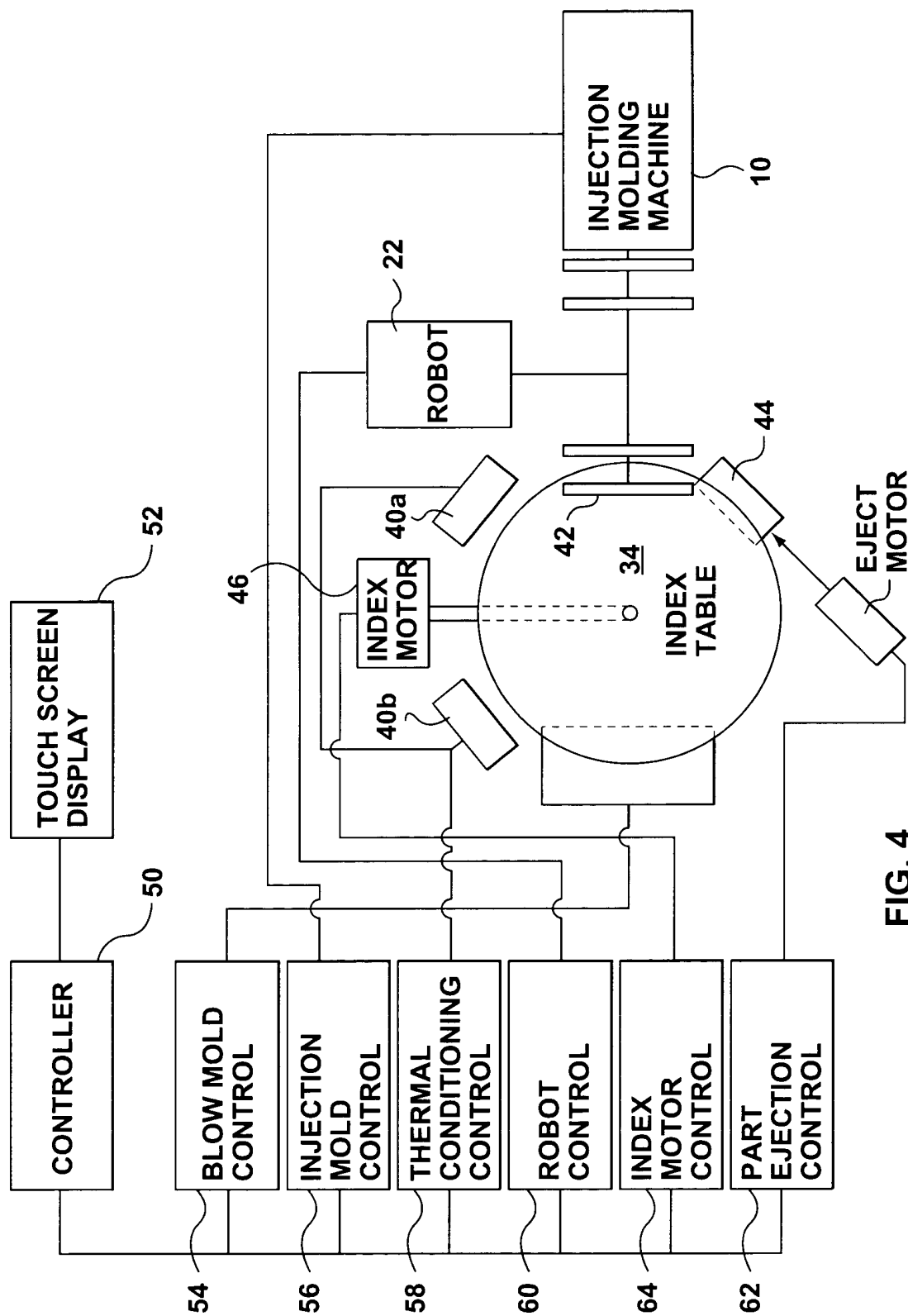
FIG. 2

FIG. 2

FIG. 2



**FIG. 3**



**FIG. 4**

SYNCHRONOUS MODE  
IMM 12.0s, x [BMM 4.0s + 2s DWELL after each blow cycle]

	CYCLE TIME (SEC.)	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5	10.0	10.5	11.0	11.5	12.0
IMM	1 IMM Process	IMM Process																							
	2 Ejectors Fwd/Dwell/Back																								
	3 Mold Open/Turret Rotate/Mold Close																								
	1 Move to Photo Eye 2																								
ROBOT	2 Drop Row 2																								
	3 Move to Pick Position																								
	4 Pick Dwell / Cool Jet Blow																								
	5 Part Transfer																								
	6 Move to Photo Eye 1																								
	7 Drop Row 1																								
	1 Conditioning Station 1																								
BMM	2 Conditioning Station 2																								
	1 Table Index																								
	2 Mold Clamp & Clampup																								
	3 Pre-Blow, Stretch, Blow & Exhaust																								
	4 Unclamp & Mold Open																								

FIG. 5

# SYNCHRONOUS MODE

BLOW MOLD MACHINE		TABLE		ROBOT		INJECTION MOLDING MACHINE		THERMAL CONDITIONING STATION 40a		THERMAL CONDITIONING STATION 40b	
0.0 sec	MOLD CLOSED		TABLE STATION-ARY		DROP GROUP 2 ON TABLE		GROUP 1 AND 2 PARISONS CREATED IN INJECT-ION UNIT		CONDIT-IONING GROUP 1		CONDIT-IONING GROUP 2
0.75 sec	GROUP 1 ARTICLES BLOWN										
1.0 sec											
2.75 sec	MOLD IDLE				MOVE TO PICK POSITION AND DWELL						
4.75 sec											
5.5 sec	MOLD OPEN										
6.0 sec			TABLE INDEXED		7.25 sec				STATION OFF		STATION OFF
8.25 sec	MOLD CLOSED										
	GROUP 2 ARTICLES BLOWN		TABLE STATION-ARY		REC GROUP 1 & 2 FROM INJ. UNIT AND ROTATE				CONDIT-IONING GROUP 2		CONDIT-IONING GROUP 1
8.75 sec											
9.5 sec											
10.0 sec	MOLD IDLE				MOVE TO POS. TO DROP GROUP 1						
10.5 sec											
10.75 sec					DROP GROUP 1 ON TABLE		MOLD OPENED TURRET ROTATED AND MOLD CLOSED				
11.5 sec	MOLD OPEN										
12.0 sec			TABLE INDEXED		ROBOT IDLE				STATION OFF		STATION OFF

FIG. 6

[illegible]

**FIG. 7A**

## ASYNCHRONOUS MODE

ASTINGCHRONOUS MODE  
BMM 12.0s, x BMM 4.0s + 4.0s DWELL AT END OF 2nd blow cycle

	CYCLE TIME (SEC.)	12.5	13.0	13.5	14.0	14.5	15.0	15.5	16.0	16.5	17.0	17.5	18.0	18.5	19.0	19.5	20.0	20.5	21.0	21.5	22.0	22.5	23.0	23.5	24.0
IMM	1 IMM Process																								
	2 Ejectors Fwd/Dwell/Back																								
	3 Mold Open/Turret Rotate/Mold Close																								
	1 Move to Photo Eye 2																								
ROBOT	2 Drop Row 2																								
	3 Move to Pick Position																								
	4 Pick Dwell / Cool Jet Blow																								
	5 Part Transfer																								
	6 Move to Photo Eye 1																								
	7 Drop Row 1																								
	Conditioning Row 1 Station 1																								
BMM	2 Conditioning Row 1 Station 2																								
	1 Conditioning Row 2 Station 1																								
	2 Conditioning Row 2 Station 2																								
	1 Table Index																								
	2 Mold Clamp & Clampup																								
	3 Pre-Blow, Stretch, Blow & Exhaust																								
	4 Unc clamp & Mold Open																								

**FIG. 7B**



[illegible]

	CYCLE TIME (SEC.)	36.5	37.0	37.5	38.0	38.5	39.0	39.5	40.0	40.5	41.0	41.5	42.0	42.5	43.0	43.5	44.0	44.5	45.0	45.5	46.0	46.5	47.0	47.5	48.0
IMM	1 IMM Process																								
	2 Ejectors Fwd/Dwell/Back																								
	3 Mold Open/Turret Rotate/Mold Close																								
ROBOT	1 Move to Photo Eye 2																								
	2 Drop Row 2																								
	3 Move to Pick Position																								
	4 Pick Dwell / Cool Jet Blow																								
	5 Part Transfer																								
	6 Move to Photo Eye 1																								
	7 Drop Row 1																								
	1 Conditioning Row 1 Station 1																								
	2 Conditioning Row 1 Station 2																								
	1 Conditioning Row 2 Station 1																								
BMM	2 Conditioning Row 2 Station 2																								
	1 Table Index																								
	2 Mold Clamp & Clamrup																								
	3 Pre-Blow, Stretch, Blow & Exhaust																								
	4 Unclamp & Mold Open																								
Conditioning SHOT 1, Row 2 in conditioning station 2																									
Table Index																									
Mold Close & Clamrup																									
Blow Molding SHOT 1, Row 1 into BOTTLE																									
Blow Molding SHOT 1, Row 2 into BOTTLE																									
Unclamp & Mold open																									
Additional time waiting for Robot which waits for BMM																									
Table Index																									

FIG. 7D

# ASYNCHRONOUS MODE

BLOW MOLD MACHINE		TABLE		ROBOT		INJECTION MOLDING MACHINE		THERMAL CONDITIONING STATION 40a		THERMAL CONDITIONING STATION 40b	
0.0 sec	MOLD CLOSED	TABLE STATION-ARY		DROP GROUP 2 ON TABLE	GROUP 1 AND 2 PARISONS CREATED IN INJECT-ION UNIT			CONDIT-IONING GROUP 1		CONDIT-IONING GROUP 2	
0.75 sec	GROUP 1 BLOWN										
1.0 sec	MOLD OPEN										
2.75 sec		TABLE INDEXED		MOVE TO PICK POSITION AND DWELL							
3.5 sec											
4.0 sec		TABLE STATION-ARY		REC GROUP 1 & 2 FROM INJ. UNIT AND ROTATE				CONDIT-IONING GROUP 2		CONDIT-IONING GROUP 1	
4.75 sec	MOLD CLOSED										
	GROUP 2 BLOWN AND MOLD KEPT CLOSED										
8.25 sec		TABLE INDEXED		MOVE TO POS. TO DROP TO GROUP 1							
9.5 sec		TABLE INDEXED		DROP GROUP 1	MOLD OPENED TURRET ROTATED AND MOLD CLOSED						
10.0 sec											
10.5 sec											
10.75 sec	MOLD OPEN										
11.5 sec											
12.0 sec											

FIG. 8